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ABSTRACT

Imagery has a significant role in cognitive development. Reading research has established the fact that good readers image spontaneously and that there is a high interrelationship between overall preference for a story, the amount of text-related imagery in the story, comprehension, and recall. Imagery researchers agree that everyone is capable of imaging. As with any other skill, using imagery effectively appears to be a matter of practice. The basic techniques for stimulating pupils to use imagery involve relaxation and the use of images that appeal to all their senses. When pupils read a story, they should put themselves into the role of the character. They should experience what the character sees, smells, hears, tastes, and feels. Pupils who can do this experience the story on a higher cognitive and affective level than pupils who are not able to do so. Research indicates that imagery is used infrequently in the classroom. Failure to recognize the powerful potential of imagery in the reading program denies pupils the use of a major correlate in reading instruction. (Thirty-two references are attached.) (Author/MG)

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ABSTRACT

IMAGERY: A NEGLECTED CORRELATE OF READING INSTRUCTION

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Imagery is a powerful and mysterious force in our minds that can be used to achieve personal goals. By imagining yourself performing a desired goal, you program yourself to actually accomplish the goal. Throughout history, brilliant thinkers have generated ideas in the form of images.

Imagery has a significant role in cognitive development. It is only through imaging that we are able to consider things in their absence. Many authorities contend that only literature that contains imagery endures through the ages. Dante's Inferno, for example, can be regarded as a kind of memory system for memorizing Hell and its punishments with striking images of ordered phrases.

Reading research has established the fact that good readers image spontaneously and that there is a high interrelationship between overall preference for a story, the amount of text-related imagery in the story, comprehension, and recall. The use of imagery has also been found to be an effective strategy for enabling learning disabled students to improve their comprehension and to remember information.

Imagery researchers agree that everyone is capable of imaging. Ability to image is an innate potential like drawing, juggling, singing, or any other skill that improves with practice. As with any other skill, using imagery effectively appears to be a matter of practice.

The basic techniques for stimulating pupils to use imagery involve relaxation and the use of images that appeal to all their senses. When pupils read a story, they should put themselves into the role of the character. They should experience what he/she sees, smells, hears, tastes, and feels. Pupils who are able to put themselves into the role of the character experience the story on a higher cognitive and affective level than pupils who are not able to do so.

Unfortunately, research indicates that imagery is used infrequently in the classroom. Failure to recognize the powerful potential of imagery in the reading program is to deny pupils the use of a major correlate in reading instruction.

IMAGERY: A NEGLECTED CORRELATED OF READING INSTRUCTION

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Each of us has a powerful and mysterious force in our mind that we can utilize to bring about dramatic improvement in our lives. It is not difficult to control, and anyone can do it. This force is called imaging, derived from imagination. According to Peale (1982, p. 1), "Imaging is a kind of laser beam of the imagination, a shaft of mental energy in which the desired goal or outcome is pictured so vividly by the conscious mind that the unconscious mind accepts it and is activated by it."

You can make imaging work for you by vividly picturing in your conscious mind a desired goal or objective and holding that image until it becomes a part of your unconscious thinking and an integral and automatic part of your behavior.

All of us have experienced imaging at one time or another. For instance, imagine right now that you are riding in a large power boat. Can you describe the boat? If you cannot visualize the boat, maybe you can feel the sun, wind, and spray on your body, or hear the sound of the motor and the rolling waves. Perhaps you can taste the salt on your lips, or smell the exhaust from the diesel motor. If you experienced any of the above sensations, you were imaging.

For some people mental images are visual. For others, imagery involves memories of sounds, body feelings, odors, tastes, muscle activity, emotions, or even abstract concepts. Relatively few people have "pure" images, confined to one sense or one emotion (Brown, 1980).

Imagery and Ideas

Anecdotal accounts and research suggest that imaging is more than experiencing sensations; it links thought and language. History is filled with accounts of brilliant thinkers whose ideas appeared full blown in the form of images prior to language.

One of the earliest examples of such a person was Simonides, a Greek poet and scholar who lived around 500 B. C. Simonides had been invited to a banquet to recite his lyric poems and was called outside to receive a message. While he was absent, the ceiling of the banquet hall collapsed, crushing all the dinner guests beyond recognition. When asked if he could remember who the guests were, Simonides discovered that he could mentally picture the table, walk around it and see in his mind's eye all the guests in the seats they occupied prior to the collapse. He was thereby able to show relatives which ones were their dead.

One of the most creative geniuses of our time, Albert Einstein, frequently remarked to friends that images and not words or language served him as elements of thought:

> The words of the language, as they are written or spoken, do not seem to play any role in my mechanism of thought. The psychical entities which seem to serve as elements in thought are certain signs and more or less clear images which can be "voluntarily" reproduced and combined . . . . Conventional words or other signs have to be sought for labo-

riously only in the secondary stage, when the mentioned associative play is sufficiently established and can be reproduced at will (Ghiselin, 1952, p. 43).

Examples of great thinkers who have depended upon imagery as the vehicle to carry their thoughts are so common that Gowan (1978, p. 26) concluded "in the case of every historic scientific discovery and invention which is researched carefully enough, we find that it was imagery, either in dreams or in a waking state, which produced the breakthrough."

Research on Imagery as the Link Between Thought and Language

It has long been recognized that imagery has a special role in cognitive development. Bruner, Oliver, and Greenfield (1966) contended that imagery is the predominant form of mental representation during early childhood. According to Piaget and Inhelder (1971), prior to the advent of imagery, children are "presentational"--capable of dealing with things only in their immediate presence. Only after they learn to image can children become "representational"--capable of dealing with things in their absence. So, to some degree, children's first representational thought consists of images rather than words.

Later in development, verbal processes and imagery seem to interact. In describing what he calls the dual coding theory, Paivio (1983) stated that imagery does not normally function alone, but involves verbal processes since the generation of images is itself initiated by linguistic clues. He contended that the mental processes of readers of literature or viewers of

visual art and the productive work of creative writers and artists involve a continual interaction of two great symbolic systems. One system is expressed as imagery and the other as language. We can move freely between the modes of thought represented by these two systems and, thereby, expand our literacy.

Research on Imagery and Literature

Many are convinced that writers who have endured through the ages are those who used images in their writings. Paivio (1983) listed several classic writers who, he believed, saw writing as a sort of memory system to help readers memorize the content of their prose or poetry. An example is Dante whose Inferno can be regarded as a "kind of memory system for memorizing Hell and its punishments with striking images of ordered phrases."

Spurgeon (1935), in her Shakespeare's Imagery, underlined and classified all the imaginative word pictures in Shakespeare's plays to show that he produced a greater range and variety of images than his contemporaries. Bettleheim (1976) proposed that the fairy tales which have endured through the ages have done so because of the profound images they evoke in their readers. If literature containing imagery endures because of this quality, it is only logical that the use of imagery should facilitate the comprehension and recall of literature.

Comprehension

At one time it was assumed that comprehension was inherent in the words of the text. Now, there is evidence that the

comprehension process involves both the reader and the text; that is, the reader's thoughts contribute to the meaning of the text (Galda, 1983).

Imagery plays a large role in helping readers formulate the thoughts that contribute to the meaning of the text. Gambrell and Bales (1987) presented evidence that visual imagery facilitates reading comprehension for children from third grade throughout their educational career. Rasinski (1985) found that many readers intuitively use mental images to aid their comprehension. In fact, the ability of readers to generate or use imagery in their attempt to comprehend written discourse is a central factor in differentiating good from poor readers (Jacob, 1976).

For pupils who do not generate imagery intuitively, there is yet hope. Pressley (1976) found that both children and adults who received direct instruction in inducing imagery in listening situations significantly increased their comprehension and memory. Miccinati (1981) demonstrated that imagery instruction improves comprehension of what is heard and read and provides a means of encoding an organizing prose in a student's working memory.

Long, Winograd, and Bridges (1989) explored reader and text effects on the production of mental imagery during and after reading a poem, a story, and two expository texts in fifth grade classes. They concluded that imagery occurs spontaneously during and after reading all texts and that the production of imagery is affected by both reader and text.

Sadoski investigated spontaneous mental imagery as a form

of literary response (Sadoski, 1983, 1985; Sadoski, Goetz, Lee, and Roberts, 1985) and found that images of the climax of a literary story were consistently the most frequently mentioned in the imagery self reports of students of a variety of ages. In another study (Sadoski, 1984), a significant interrelationship was found between overall preference for a story, the amount of text-related imagery for the story, and recall. These findings suggest a connection between affect, imagery, and plot comprehension.

Zenker and Frey (1985) related an experiment conducted in tenth grade classes in which relaxation techniques and visual image training enhanced poor readers' comprehension and literal recall of narrative prose.

Imaging and the Comprehension of Learning Disabled Students

The use of imagery has been found to be an effective strategy for enabling learning disabled students to improve their comprehension. Clark, Deshler, Schumaker, Alley, and Warner (1983) found that learning disabled secondary students could learn imaging and self questioning. The results of their investigation indicated that the use of these strategies resulted in greater comprehension scores.

Rose, Cundick, and Highbee (1983) taught 30 elementary LD students to use imagery to apply memorization strategies to help them remember information. Results indicated that this mnemonic training increased reading comprehension of the group significantly.

Other Language Skills

The use of imagery in the language arts class has been found to improve reading recall (Peters and Levin, 1986). It also improves word recognition skills (Gambrell and Bales, 1986) and enables pupils to build vocabulary more efficiently (Vaughn, Crawley, and Mountain, 1979).

MacGeorge (1984) taught high and low imagery words to first grade pupils in a low income urban school. At the end of six weeks, she found that high imagery words were recalled and retained at a significantly higher rate than low imagery words. Kolker and Terwilliger (1981) reported that primary school pupils learned high imagery nouns in fewer trials than low imagery nouns and that second-grade pupils learned the nouns in fewer trials than did first-grade children.

Research investigations demonstrate that pupils who use imagery score higher on measures of oral and written communication skills than students who did not use imagery (Gaylean, 1982) and the imagers also exhibited a higher level of creativity in their writing (Cicciotte, 1980).

The How-To's of Imaging

Thus far, a link between imagery and literacy has been established. In fact, practice in imagery can positively affect children's development in literacy. For example, in the language arts, the possibilities are unlimited: Pupils can reduce anxiety by imaging themselves listening, speaking, reading, and writing with confidence and competence. They can improve their writing by imaging the story prior to translating it into language. Information from expository texts can be recalled by

drawing and imaging cognitive overviews.

Everyone is capable of imaging. The ability to image is an innate potential like drawing, juggling, singing, or any other skill that improves with practice. As with any other skill, using imagery effectively appears to be a matter of practice.

Teachers also can improve their techniques in stimulating pupils to use imagery. The range of imagery techniques is limited only by an educator's ability to devise such techniques. The following basic techniques are recommended for teachers desiring to begin using imagery in the classroom.

Although children are the most proficient imagers of all age groups, a few pupils may giggle or engage in other disruptive behavior when they are first introduced to imaging techniques. A technique that the writers have found to be effective in avoiding such disruptions is to tell pupils something like this:

> This activity we are about to use is done mainly at colleges and universities, but I believe that you will be able to do it because you can think hard and do what I say. Close your eyes during the activity so that you will not be bothered by anything in the classroom.

Relaxation

Imaging occurs much more efficiently when pupils are relaxed. The most effective way to enable pupils to relax is through a combination of deep breathing and muscle relaxation. Ask pupils to sit comfortably in their chairs and close their

eyes; (we recommend sitting because participants who recline are more likely to sleep). They may remove glasses, contact lenses, jewelry or eliminate any condition that they believe might interfere with their relaxing. Begin by asking them to take five or more deep breaths. Then give the following instructions:

> We are going to do some breathing exercises. As you breathe, you will say the word, "relax." As you breathe in, say "re." As you breathe out, say "lax." Breathe in and fill your lungs as full as you can. Now exhale and try to empty your lungs. As you breathe in again, imagine that you are breathing in relaxation. As you breathe out, imagine that you are breathing out tension. Breathe in more relaxation. Breathe out problems and things that make you angry.

The deep breathing exercise begins the relaxation. Now, you can use the passive relaxation technique to relax them even more. To use this technique, ask pupils to turn their attention to their legs and feel the muscles relax. Then, they attend to their arms. Have them notice that their breathing has become slower and shallower. Tell them that with each exhale they feel their stomach muscles relaxing. Now, ask them to turn their attention to each muscle group in their body. If any muscles are not relaxed, they should allow them to do so. At this point, they are ready to begin their imagery.

Imaging in the Reading Class

The first time you use imagery in the reading class, you should introduce the pupils to the strategy by saying something similar to the following which is adapted from Richardsom (1982):

> We are going to do something a little different today to help you understand and remember the story we are about to read. I'd like you to imagine as clearly as you can the scenes in the story. Make an effort to see in you mind's eye the things around you. Imagine the sounds you would hear, the odors you would smell, and, perhaps, the things you would touch. If there are emotions that would arise from the situation, let yourself feel those emotions.

When pupils are relaxed and their minds are open, you can help them learn through imaging. Remember that not all pupils are able to visualize, so you should suggest images that appeal to all their senses. For instance, if you are using imagery to help pupils read effectively about a frightening experience, you might help them to use all their senses by adapting the following suggestions to your lesson (Richardson, 1982):

Sense	How To Practice
Visual	Imagine the setting in which the experience takes place. Describe outstanding features of objects, persons, land features, and animals.
Auditory	Search your memory for the various sounds that

are present while you are reading about the frightening experience: the sound of a siren, the whistling of the wind, tree branches scraping.

Cutaneous Imagine how the rain, snow, wind, or fog feels on the character's skin. Tell how his/her body feels if it is in an uncomfortable position.

Kinesthetic Notice the movement of people, animals, and/or physical objects during the experience. Imagine the character's movements.

Gustatory Sense the taste of fear, salt air, food, or other tastes related to the experience.

Olfactory Smell food in preparation, smoke, mold, rotting wood, or other odors present at the experience.

Affective Feel the emotions of the situation--fear, helplessness, frustration, or despair.

Physiological Sense the body state or feeling resulting from the experience--knots or butterflies in your stomach, body aches, and pains.

With a little imagination, resourceful teachers can embellish these techniques so that they appeal to the particular interests and backgrounds of their students. Richardson (1982) suggests a wide variety of imaging strategies that would be useful to teachers just beginning to use imagery in the classroom.

Conclusion

The research evidence is quite clear that learners of all ages can expand their learning through practicing the use of imagery. Unfortunately, research also indicates that imagery is used infrequently in the schools. Even more unfortunate is the fact that educators apparently do not plan to use imagery in the foreseeable future. Green (1988) lamented that in the recent proliferation of reports on education and calls for reform, there has been little or no mention of imagery. In attempting to explain what happened to imagery, Green contended that it has been discouraged "by literalism, by complacency, by technical rationality, by obsessions with predictable results" (p. 55).

However, pupils in today's world can and must expand their horizons. Through the great symbol system of imagery, they can learn to move from literalism to creativity, from complacency to contemplation, from technical rationality to flights of fancy, and from obsessions with predictable results to speculations of possibilities. In short, they can become active, competent participants of the new society which they must help to form.

On the other hand, if we as educators fail to recognize the powerful potential of imagery, our pupils might well complete their educational experience on the level described by Ward and Chippendale (Sommer, 1978, p. 54) when they prophesied that "The visually illiterate children of one generation become the arrogantly insensitive adults of the next."

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